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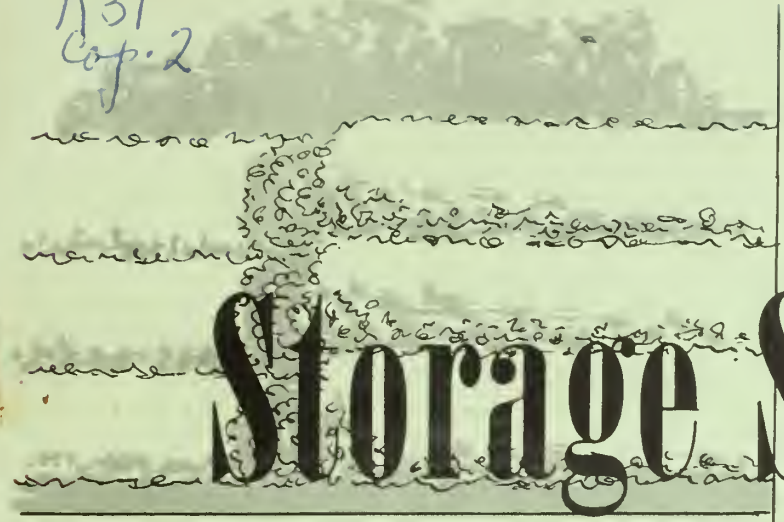
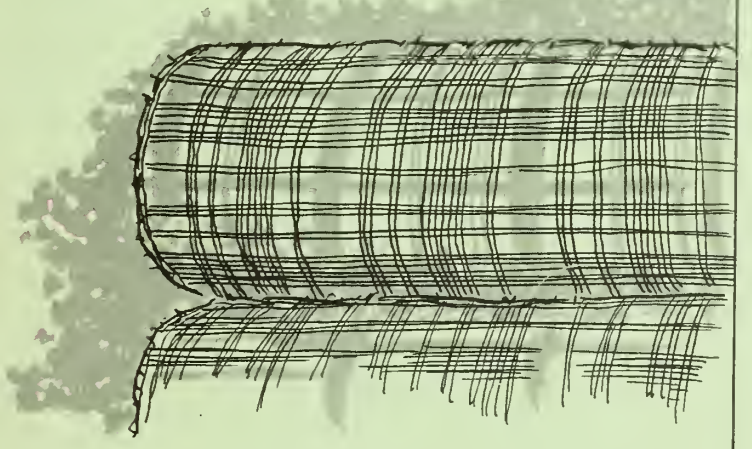


Storage Space Requirements

FOR HOUSEHOLD TEXTILES



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Home Economics Research Branch
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STORAGE SPACE REQUIREMENTS FOR HOUSEHOLD TEXTILES

A technical report of a project contributing to a coordinated program of research on farm housing conducted by State agricultural experiment stations and the Agricultural Research Service

This publication reports in detail the methodology and findings of a study made to establish basic dimensions of commonly used kinds and sizes of household textiles as they are stored 1/ and to determine the measurements of storage facilities needed for the kinds and quantities of household textiles owned by specified portions of farm families in all regions of the country. The project was a unit of a coordinated program of research in farm housing conducted by the Agricultural Research Service and State agricultural experiment stations. It made use of information obtained from four regional surveys of farm family housing needs and preferences, which constituted the initial aspect of that program 2/.

PREVIOUS WORK

The few studies of storage space requirements for household textiles which have been reported in the literature were based on local situations and the relation of these to the nationwide problems of rural families was not known. Studies made by Maud M. Wilson of the housing requirements of rural Oregon families were used in developing plans and dimensions for storage facilities suitable for Oregon farmhouses 3/. In a

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1/ An abbreviated report of this phase of the study was published in the Journal of Home Economics, vol. 47:177-184, March 1955.

2/ The surveys were reported in the following publications:

Beyer, G. H. Farm Housing in the Northeast. Northeast Region. Pub. No. 1, 458 pp., illus. (Cornell Agr. Expt. Sta. Mem. 292.) 1949.

Farm Housing in the South. South. Coop. Ser. Bul. 14, 274 pp., illus. 1951.

Nickell, P., Budolfson, M., Liston, M., and Willis, E. Farm Family Housing Needs and Preferences in the North Central Region. No. Cent. Region. Pub. 20, 173 pp., illus. (Iowa Agr. Expt. Sta. Res. Bul. 378.) 1951.

Woolrich, A., Beveridge, E., and Wilson, M. Housing Needs of Western Farm Families. West. Coop. Ser. Res. Rpt. 1., 215 pp., illus. 1952.

3/ Wilson, M. Plans for Oregon farm and acreage homes. Oregon State College. 1945.

study reported by Purdue University in 1948 4/, approximately 75 nonfarm families were sampled to ascertain the kinds of articles (other than kitchen equipment) that they stored. Space dimensions and methods of storage were recommended.

A master's thesis written at the University of Tennessee in 1949 5/ reported that among 57 farm families sampled in a small South Carolina community, the storage facilities most needed were for bedding, medicine, bed linen, and sewing equipment - in the order listed. The homemakers also gave their preferences regarding the types of storage facilities for bed linens they would want in a new house.

A selected group of 87 homemakers of farm and nonfarm families near Newark, Del., were interviewed regarding their current practices in the choice and storage of bedroom and bathroom textiles. This study was reported by Drexel Institute of Technology in 1947 6/.

Helen McCullough, in a study reported in 1952, determined the amount of space needed to accomodate given numbers of various kinds of household articles, including textiles. Minimum depths of storage units were recommended and designs for the units were developed 7/.

UNIT-SPACE DIMENSIONS OF HOUSEHOLD TEXTILES

Unit-space dimensions are estimates of the size of space needed to store a specified number of a given article. They comprise two measures: space for the article itself, and the clearance needed around it for its protection and for freedom of hand action in placing or removing it from storage. Because a clearance allowance has been included, unit-space dimension figures afford a quick method of estimating the total amount of space needed in storage facilities for several units of a specified article or for several articles that are to be stored together. In the initial phase of the study reported here, unit-space measurements were determined by laboratory experimentation for the kinds of household textiles owned by at least 25 percent of the families in one or more regions of the United

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4/ Marley, H. L. A study of some requirements of a group of Indiana families. Master's thesis (unpub.), Purdue Univ. 1948.

5/ Craven, R. M. A study of certain storage facilities in selected farm homes as a guide to storage needs. Master's thesis. On file, Univ. of Tenn. library. Aug. 1949.

6/ Stallnecker (Miller), M. L. A study of current practices of a selected group of homemakers in the choice and care of bedroom and bathroom textiles. Master's thesis. On file in college library, Drexel Institute of Technology, College of Home Economics. May 9, 1947.

7/ McCullough, H. E. Space design for household storage. Univ. of Illinois Agric. Exp. Sta. Bul. 557. Aug. 1952.

States, as shown by the 1948 surveys of farm families' housing needs and preferences. Small items not in the inventories of any regional schedule were also included-washcloths, dishcloths, and pot holders.

Procedure

Selection of Samples

Since the surveys gave only limited information about the physical characteristics of the textiles owned by families, the samples of textile articles to be used in the study of unit-space dimensions were selected as follows:

1. Identical items made up the entire sample of each kind of article that is often bought in multiples or that serves a more utilitarian then decorative purpose (sheets, pilloweases, bath towels, washcloths, dish towels, dishcloths, blanket sheets, and warm bed coverings). Their physical characteristics were the same as those of corresponding articles which certain sales records 8/ indicated had been sold in greatest quantity during the preceding year.

2. Assorted items were used for the samples of articles that are frequently obtained one at a time or whose function is likely to be more decorative than utilitarian. Scarves and runners, aprons, bedspreads, guest hand towels, tablecloths, and napkins were included in this category.

To obtain items of the specified weight, weave, fiber content, and size, some samples were purchased new. It was assumed that most household textiles stored would have been washed frequently and therefore would have been shrunk. On this supposition, sheets, pillowcases, terry towels, washcloths, dish towels and cloths, tablecloths, and napkins were given the following treatment:

The length and width of each sample was recorded; then loads weighing about 7 pounds each were washed in an automatic washer at the temperature and with the amount of soap recommended by the manufacturer of the washing machine. After washing, the articles were dried either in an automatic dryer or on an outdoor line. With the exception of dish towels, plain-weave cottons were then sprinkled and ironed with a rotary ironer. Dish towels and terry articles were left unironed. Length and width measurements were taken along the same sides as the prelaundering measurements. This procedure was repeated until comparison of measurements with those resulting from the preceding laundering indicated that the dimensional change for most of the items in the sample was less than one-fourth inch in either direction.

8/ Two nationwide retail distributors to the rural market answered a questionnaire submitted to them in which the various sizes, fibers, weaves, and weights of a given kind of household linen were ranked according to the proportion of the total sold during the preceding year.

Blankets, blanket sheets, and bedspreads were not laundered because for these articles the method of laundering greatly affects the amount of shrinkage, which may be continuous from laundering to laundering. Rather than attempt to approximate sizes of laundered articles of these kinds, the maximum size--that is, the size when new--was used.

Table 1 gives the description, labeled size, and laundered or actual size of each sample for which unit-space dimensions were computed. In some instances, the actual size of articles before laundering differed from the size indicated on the label. Also, some articles showed an increase in one dimension after laundering.

Equipment and Procedure for Measuring

Folded textiles were measured on a 36-inch-square board with walls on two adjacent edges. Fitted into grooves in the board and passing under the side walls were four measuring sticks, each with both a horizontal and a vertical arm marked in one-quarter-inch gradations. The folded textile or pile of textiles was placed in the closed corner of the measuring board so that it just touched the walls. If a pile was being measured, the final fold of every article was placed on the same side of the pile facing an unwalled edge of the board.

Length and width measurements were made by drawing the measuring sticks to the item so that the vertical arm just touched the textile. The grooves into which the measuring sticks fitted necessarily became fixed points at which the measurements were read. When there were variations in the measurements taken along one side of the textile, the highest reading was used. For height measurements, a thin metal sheet was placed on top of the pile and leveled visually; then the measurement was read at the point where the metal touched the vertical arm of the measuring stick. The weight of the metal--9 ounces--was not great enough to alter the height of the textile being measured. All measurements were made in one-quarter-inch intervals; any measurement falling between two intervals was read as the higher figure.

Folding Patterns

The way in which an article is folded affects its storage space requirements; therefore each article was folded in every way that it was thought a housewife might fold it. From the many resulting folds, several patterns for each type of textile were chosen for use throughout this study 9/. They were selected because each (1) was representative of the different sizes and shapes that were obtained by different folding methods, (2) required a minimum of motions and effort to fold for storage or unfold for use, and (3) resulted in a neat, easily handled item.

9/ Descriptions of the folding patterns are given in the table of unit-space dimensions, pp.

Table 1.--Kind, number, and description of samples of household textiles

Article	Description of article as purchased	Number of items in sample	Average size as used for storage space calculations
			Inches
Sheets:			
Rotary ironer ironed	128 count muslin; labeled size before hemming 81" x 108", average actual size 83" x 105"; weight 4.25 oz./square yard.	3	84.2 x 97.9
Hand ironed		3	82.8 x 97.8
Pillowcases	128 count muslin; labeled torn size before hemming 36" x 42", average actual size 33" x 21"; weight 4.25 oz./square yard.	6	20.0 x 31.0
Dish towels	Hemmed flour sacks, approximately 30" x 36"	20	30.3 x 35.9
Dishcloths	Leno weave, labeled size 15" x 15"	4	12.1 x 14.1
Bath towels	Terry; average actual size 24" x 46", weight approximately 8.5 oz. per towel.	12	24.7 x 44.7
Washcloths	Terry; average actual size 13" x 13", weight approximately 1 oz. per cloth.	12	11.6 x 12.2
Guest hand towels	Assorted cotton and linen; terry, huck, plain weaves.	12	15.8 x 24.4
Napkins:			
1. Linen	Damask, 18" x 18"	6	17.5 x 18.0
2. Rayon/cotton	Plain weave, printed design, approximately 16" x 17", matched tablecloth (3) below.	6	16.6 x 16.7
Tablecloths:			
1. Cotton	Damask, actual size 72" x 106"	1	70.2 x 104.0
2. Spun rayon/cotton	Plain weave, vat dyed, labeled size 54" x 70"	1	53.0 x 66.0
3. Spun rayon/cotton	Plain weave, printed design, labeled size 54" x 72".	1	55.0 x 70.2
4. Spun rayon/cotton	Plain weave, printed design, labeled size 54" x 54".	1	51.5 x 54.5
5. Spun rayon/cotton	Plain weave, printed design, labeled size 51" x 51".	1	47.8 x 53.5
6. Cotton	Twill, printed design, labeled size 54" x 54"	1	50.5 x 55.0
Place mats	Straw	6	12.7 x 18.3
	Plastic	6	12.0 x 19.0
	Linen	6	12.0 x 17.5
Table pad	3-piece, accordion-folded, asbestos, plastic-coated cover.	1	12.0 x 20.5
Kitchen hand towels	Linen, woven border, roller-towel type	12	17.0 x 35.0
Aprons	Cotton; assorted designs and sizes	4	----------
Pot holders	Cotton; assorted sizes, designs and weaves	8	6.2 x 6.2
Dresser scarves	Assorted designs, fibers, sizes	6	----------
Bedspreads:			
1. Chenille	Cotton, all-over tufted design, double-bed size.	1	99.5 x 106.5
2. Damask	Cotton, double-bed size	1	88.5 x 109.2
Blankets	88 percent rayon, 12 percent wool blanket fleece; labeled size 72" x 90", rayon satin binding.	2	72.1 x 91.5
Blanket sheets	Cotton flannel; blanket-stitched ends, labeled size 70" x 90".	2	73.0 x 92.5
Pillows	Down	2	16.2 x 24.1

Prestorage Treatments

Prestorage treatments under conditions simulating various home practices were studied to determine what effect such treatments have on space requirements.

Drying methods.--Two methods of drying clothes were compared. Bath towels, sheets, and dish towels--articles which some families store without ironing--were washed in an agitator-type washing machine in water at 40°C, and water was extracted by roller wringer. Half were dried in a domestic revolving drum dryer, the other half were hung smoothly over outside drying lines. Each item in the sample was washed six times and dried three times by each of the two methods; the order in which the drying methods were applied was randomized. Like items dried by the same method were folded identically, and height, width, and length measurements were taken of individual items and of stacks of like items.

Finishing methods.--Many homemakers like the appearance and feel of ironed textiles, others prefer to save time and energy by using some unironed linens, and still others iron only a portion of the textile. To determine the possible effect that ironing methods have on storage space requirements, a series of tests was made in which sheets and pillowcases were laundered as in the drying methods test, line dried, and finished by different methods before measuring.

Six sheets, folded identically and piled, were measured unironed, partially ironed without dampening, fully ironed without dampening, and fully ironed after dampening. Six pillowcases were measured unironed, fully ironed without dampening, and fully ironed after dampening. Measurements were taken for four different folding patterns for both sheets and pillowcases. After all the finishing methods had been applied, the entire test including washing, was repeated twice.

Free Space Allowance

Free space is needed around an article in storage for protection of the article and for the comfort and convenience of the person using the storage facility. The nature of the article determines which of these factors should be given the greatest consideration when making allowances for free space. Since household textiles seldom are harmed mechanically during storage or the process of storing, the major considerations in establishing specific free space allowances are those concerned with the worker.

For the worker's comfort and convenience, clearances are needed both above and at the sides of the article. There must be sufficient space to place and remove the articles without undue care and precision, to provide some degree of visibility, and to protect the worker's arms and hands from scraping against the walls and shelves of the storage facility.

Preliminary work in the laboratory showed that different workers used different amounts of space. Hand size and body mechanics apparently were

factors contributing to this variation. The size, weight, and flexibility of the textiles influenced the grasping position of the hands and consequently the amount of free space needed for hand action. The type of storage facility-shelves, drawers, trays-and, to some degree, the combinations of textiles stored together also had an influence on the amount of free space used. Because of lack of measurement data that could be applied tc computations of space needs for these variables, laboratory techniques for measuring were devised for use in the study. To assure that the allowances developed would meet maximum needs, placement of articles in storage was selected as the operation to be studied, since the preliminary work showed that this operation required more free space than did removal of articles from storage. Both side-to-side and vertical clearances were investigated.

Side-to-side clearance.--The amount of side-to-side clearance was obtained by measurement of the space used by each of three workers in 90 test situations. The situations were formulated by varying, one at a time, the factors of kind of textile, shelf height, and adjacent obstruction.

Five articles were used: sheets, pillowcases, terry towels, washcloths, and dish towels. In each of the different test situations the height of the piles was approximately the same, 5-1/2 inches. Duplicate piles were used in those situations where clearance between stacks of like articles was desired.

Three workers of different stature were chosen to carry out the test procedure. So that all subjects could maintain approximately the same posture at the shelves and work within their normal working area, shelves were set at heights in relation to specified body points of each subject. In half of the test situations, textiles were placed on shelves set at the worker's waist level. In the remaining situations the shelf was raised to cervical level.

The obstructions beside which the textiles were placed were:

Wall across left end of shelf, no obstruction along width.

Wall across left end of shelf, with door jamb extending 1 inch along the left front edge of the shelf.

Wall across right end of shelf, no obstruction along width.

Wall across right end of shelf, with door jamb extending 1 inch along the right front edge of the shelf.

A pile of textiles: Each article was placed next to a pile of like articles, and next to a pile of each of the other four linens being used in the experiment.

The subject picked up each pile of textiles, grasping it at both sides, and placed it as close to the obstruction as seemed natural and comfortable for her. An observer measured and recorded the amount of space left between the pile and the obstruction after the subject had removed her hands and stepped away from the shelves.

There were no impediments to the worker's motions other than the obstruction being tested; the remaining shelf width and space above the shelf were clear. Each worker completed a test without interruption except for rest periods taken when shelf heights and obstructions were changed. A replication of the test was made several days after the first trial, and the two measurements were averaged in each of the 90 test situations.

Vertical clearance:--Since a movable surface--drawer, sliding shelf, or tray--can be drawn away from the confining upper surface, the working space above it is, in effect, unlimited; extra vertical space for hand action is not needed. Therefore vertical clearance requirements were determined only for storage on fixed shelves.

Vertical clearance was obtained by measuring a pictorial record of the arc described by the back edge of a pile of textiles as it was placed on a shelf. A marking pen was made with foam rubber tip to hold vegetable dye. Fastened to the other end was a 3-inch by 7-inch piece of foam rubber, which served to anchor the marking pen in the folded linen. The pen was inserted in the topmost fold of an article, extending about 3 inches at the side and angled upward so that the point of the pen was on the same plane as the top of the pile. The linen holding the pen was placed on top of five similar articles folded identically and in position on the shelf. A heavy block of wood covered with mimeograph paper was placed on the shelf 3 inches to the left of the pile. The tip of the pen touched the paper lightly. The entire pile was pulled forward slowly to mark on the paper a base line representing the height of the pile. The item holding the pen was removed to a table, and the remaining articles were repositioned on the shelf. The worker picked up the pen-holding linen with both hands and, using a motion natural to her, placed it on top of the pile. This was repeated until five clear outlines were drawn on the paper. When necessary, the paper on which the patterns were recorded was replaced in order to keep the pattern outlines separate and distinct. The distance between the highest point of the arc and its base line was measured.

A 3 x 3 x 3 factorial design was used for the experiment. The three variables were worker, shelf height, and kind of linen. The three levels of each variable were as follows: Workers were of tall, medium, and short stature; shelves were adjusted to correspond with each worker's cervical, waist, and knee heights; textiles used were six each of sheets, pillowcases, and terry bath towels. Three replications were made. Average values were obtained for each worker placing each type of linen on each of the three shelf heights.

In the vertical clearance experiment, space above the shelf was not confined. In the normal home situation, however, vertical space is limited by other shelves or surfaces. To determine what effect an upper shelf would have upon clearance allowance, and simultaneously to decide on the statistic to use as a standard for clearance allowance, a check test was conducted.

Eighteen women--nine members of the Housing and Household Equipment Section staff and nine selected at random from an alphabetical listing of women employees of the Human Nutrition and Home Economics Research Branches at the Agricultural Research Center--participated in this part of the study.

A shelf holding piles of sheets, terry towels, and pillowcases was set at the level of each participant's waist. A second shelf was adjusted so that the clearance between the top of the piles of textiles and the underside of the upper shelf was equivalent to the median clearance used for each article in the earlier experiment. The participant was instructed to remove and replace in turn (1) the piles of textiles and (2) the top item from each pile. She then judged the adequacy of the between-shelf spacing. If the clearance was inadequate, the upper shelf was raised to give a clearance equivalent to the mean plus one standard deviation as found in the previous experiment. The placing and removing of the linens was repeated, and the participant's opinion of the new clearance allowance was obtained. A record of the type of storage the participant used in her own home and her comparison of the amount of clearance space at home with that of the laboratory units were also obtained. These data served as indicators of the influence of accustomed practice on the participant's reaction to space in a laboratory situation.

Computation of Unit-Space Dimensions

To obtain actual dimensions of household textiles, each article was given the prestorage drying and finishing treatment that resulted in maximum space needs for that article. Like articles were then folded on a firm, smooth surface and stacked so that the final folds were arranged in the same relative position (all open ends were on the same side of the pile). The pile was placed on the measuring board and width, length, and height readings were made. This process was repeated for each of the predetermined patterns of folding. Three replications were made, and an average of the three readings was obtained for length, width, and height, when samples were folded by each pattern. Because of the compressibility of the linens, readings for height of a pile did not total the cumulative heights of an equal number of articles measured individually. Therefore the stacked height was used--that is, the average height per individual article in a pile of like articles.

Vertical and horizontal clearances were added to the average dimensions of textiles in units of 1, 2, 4, or 6 items. Since a linen can be stored with either the long or short edge parallel to an adjacent pile, a measure for side-to-side clearance was added to both length and width

measurements of folded articles. Two height measures were calculated, one for storage on fixed shelves, the other for storage on movable surfaces--drawers, trays, or sliding shelves. After the allowances were added to actual dimensions, figures were rounded to the nearest whole inch.

Results and Conclusions

Prestorage Treatments

Drying methods.--The length and width measurements of individual items of unironed textiles that had been line dried were greater and the folded height measures were less than those of samples dried in a dryer (table 2). The height of a pile of three line-dried sheets was two-thirds that of a similar pile of dryer-dried sheets. Heights of piles of line-dried terry towels and dish towels were 9 percent lower than their dryer-dried counterparts. The differences were greater than would be expected to occur as the result of sampling variations ($P=0.01$). Although significant statistically, the variation in length and width measures were too slight to be of consequence in space planning. However, the accumulated increase in the height of a pile of dryer-dried articles over the height of a pile of line-dried textiles would necessitate an increase in the distance between storage surfaces. Therefore, unit-space dimensions for those textiles that may be stored without previous ironing were based on measurements of dryer-dried articles.

Finishing methods.--The average measurements of piles of sheets and pillowcases ironed and folded by each of the different methods studied are given in table 3. Analysis of these data showed that the method of finishing did not make a significant difference in length or width measurements. Nor was the third measurement (height) of pillowcases significantly affected by the finishing methods. With sheets, however, height was affected by the finishing method. Six unironed sheets, folded by any one of the four patterns, required approximately 1 inch more space between shelves than did a like number of sheets that had been fully ironed. This difference in height was more than could be attributed to experimental error. In view of these results, unit-space requirements for sheets were based on the measurements of that article unironed, in order to provide adequate space for sheets finished in any fashion.

Whether unit-space requirements of other household textiles should be based on unironed or ironed dimensions was determined by considering the weave and fabric of each article and the probable acceptance by homemakers of its finished appearance. On this basis, unit-space requirements for dish towels, terry towels, washcloths, dishcloths, napped bedspreads, and blankets were based on measurements of unironed articles; those for pillowcases, tablecloths, napkins, hand towels, doilies, and smoothly woven bedspreads were based on measurements of the fully ironed item.

Free Space Allowance

Side-to-side clearance.--There was little variation in the clearance used between piles of like and unlike articles or at the right and left ends of shelves. This was true both for shelves having a door jamb extending part way across the width of the shelving and for surfaces having no wall or jamb to interfere with the free movement of the worker's hands and body (table 4). Workers tended not to use the shelf space behind the door jamb; therefore, for best use of space, the full width of a storage surface should be free of such obstructions as jambs and supporting posts.

Table 2.--Dimensions of sheets, terry towels, and dish towels dried in an automatic dryer and on an outside line and folded for storage

Kind and number of articles and method of drying	Mean dimensions of folded articles 1/		
	Length	Width	Height
	Inches	Inches	Inches
Sheets:			
Individual items:			
Line-dried	20.2	12.1	1.2
Dryer-dried	19.8	11.8	1.6
Piles of 3 items:			
Line-dried	20.5	12.4	2.7
Dryer-dried	20.0	12.1	4.1
Terry towels:			
Individual items:			
Line-dried	12.2	10.7	1.5
Dryer-dried	12.0	10.5	1.7
Pile of 6 items:			
Line-dried	12.5	11.2	8.2
Dryer-dried	12.2	11.0	8.8
Dish towels:			
Group of 4 items:			
Line-dried	8.0	9.6	2.6
Dryer-dried	7.8	9.2	3.0
Pile of 3 groups of 4 items:			
Line-dried	8.2	9.8	7.2
Dryer-dried	7.9	9.3	7.8

1/ Based on three replications of each treatment. Sheets folded in fourths lengthwise, eighths crosswise; terry towels folded into halves lengthwise, eighths crosswise; dish towels folded into fourths lengthwise and crosswise.

Table 3.--Dimensions of two representative household textiles when prepared for storage by various methods

Measurement and method of finishing	6 Sheets folded by pattern 1/--				6 Pillowcases folded by pattern 2/--			
	1	2	3	4	1	2	3	4
	In.	In.	In.	In.	In.	In.	In.	In.
Length:								
Fully ironed, dampened	13.8	24.9	20.7	12.7	15.3	10.2	10.2	7.8
Fully ironed, dry	13.6	24.7	20.7	12.6	15.4	10.2	10.0	7.8
Partially ironed	13.7	24.4	20.5	12.5	----	----	----	---
Unironed	13.9	24.3	20.5	12.6	15.3	10.2	10.0	7.8
Width:								
Fully ironed, dampened	12.6	10.5	8.6	10.2	6.8	7.0	7.8	7.0
Fully ironed, dry	12.5	10.5	8.5	10.2	6.8	7.0	7.8	7.0
Partially ironed	12.5	10.5	8.2	10.3	---	---	---	---
Unironed	12.6	10.5	8.3	10.2	6.8	6.8	7.8	6.9
Height:								
Fully ironed, dampened	6.3	4.8	5.9	8.0	2.7	3.5	3.4	4.4
Fully ironed, dry	6.5	5.0	6.3	8.8	2.8	3.6	3.5	4.6
Partially ironed	6.9	5.1	6.6	9.0	---	---	---	---
Unironed	7.1	5.6	6.9	9.0	3.2	4.1	3.9	5.2

1/ Folding patterns for sheets:

1. Sixths lengthwise, eighths crosswise.
2. Eighths lengthwise, fourths crosswise.
3. Fourths lengthwise, twelvths crosswise.
4. Eighths lengthwise, eighths crosswise.

2/ Folding patterns for pillowcases:

1. Thirds lengthwise, halves crosswise.
2. Thirds lengthwise, thirds crosswise.
3. Halves lengthwise, fourths crosswise.
4. Thirds lengthwise, fourths crosswise.

Table 4.--Side-to-side clearance: Mean amount used when household textiles were placed in storage 1/

Worker, shelf height, and item	Mean amount of side-to-side clearance used between--				
	Linen and wall on left		Linen and wall on right		Piles of like and unlike items
	With 1-inch door jamb	Without door jamb	With 1-inch door jamb	Without door jamb	
	Inches	Inches	Inches	Inches	Inches
Worker:					
1	1.9	1.1	1.9	1.1	1.0
2	2.1	0.8	2.3	1.1	0.5
3	2.8	1.6	2.7	1.5	1.1
Shelf height:					
Waist	2.1	1.1	2.2	1.2	0.8
Cervical	2.3	1.2	2.4	1.2	0.9
Item:					
Terry towels	2.2	1.1	2.3	1.3	1.0
Washcloths	2.0	1.0	2.4	1.1	0.8
Pillowcases	2.3	1.3	2.4	1.2	0.9
Sheets	2.1	1.3	2.2	1.3	0.9
Dish towels	2.3	1.1	2.2	1.2	0.8
All workers, shelf heights, and items	2.2	1.2	2.3	1.2	0.9
Number of measurements	60	60	60	60	300

1/ Average of two trials by each of three workers, placing five kinds of articles on shelves of two heights, with obstructions at the right and at the left ends of shelves.

The human factor had the greatest influence on the amount of side-to-side clearance used. Wide variations between workers were noted, and the individual worker was erratic in the amount of space she used each time. The lowest and highest readings of the most consistent worker differed by three-fourths of an inch; the range in the amount of space used by the most inconsistent worker was 2 inches.

On the basis of these results, unit-space dimensions for length and width of various types of textiles were computed by adding 1.2 inches to their actual length and width measurements. This allowance, the value of the mean plus one standard deviation of the between-stack measurements (0.3 inches), has been included in the tables of unit-space measurements. When storage facilities are designed, an additional allowance of $1\frac{1}{4}$ to $1\frac{1}{2}$ inches should be added to the width of each surface to provide clearance at the end of the shelf.

Vertical clearance.--In the 270 trials where vertical space was unlimited, the mean clearance used was 2.2 inches, with standard deviation of 0.51 inches. The median was 2.1 inches. The frequency distribution by worker, item, and shelf height is given in table 5. Analysis of variance showed that the worker contributed significantly to the variation in amount of clearance used. Significance of the difference between items was on the borderline at the 5-percent level. The F-test showed negligible influence of shelf height or interaction of any two variables 10/.

The median amount of clearance used when space was unlimited was considered by most of the 18 women to be sufficient for placing individual items and piles of textiles in confined space (table 6). The 2.7-inch allowance (the mean plus one standard deviation), when tried by those few who thought the median amount of space too little, was judged adequate in every instance. Evidently the amount of clearance to which the participants were accustomed did not influence their opinions. A majority reported that in their own homes, the between-shelf clearance for sheets, pillowcases, and terry towels was greater than that used in the laboratory tests. Shelf storage was used in the homes of 17 of the participants.

Two unit-space heights were calculated for each unit of textiles, one for fixed-shelf storage, the other for storage on movable surfaces. For the former, the median vertical clearance used for sheets, $2\frac{1}{2}$ inches, was added to the average height measures of all articles. Only 1 inch was added to the height dimension of articles to be stored on movable surfaces. This extra inch is an allowance for disorder: a sliding surface will clear its opening without an allowance, but piles of linens would have to be kept smooth and neat.

10/ The value of F for ABC interaction was significant at the 5-percent level. Therefore, the ABC mean square, rather than that of the experimental error, was used in the F-test ratio for individual and two-way interactions.

Table 5.--Vertical clearance used: Cumulative percentage frequency distribution by worker, shelf height, and item

Worker, shelf height, and item	Number of trials	Cumulative percentage of trials in which specified inches of clearance were used							
		0.5 to 0.9	1.0 to 1.4	1.5 to 1.9	2.0 to 2.4	2.5 to 2.9	3.0 to 3.4	3.5 to 3.9	4.0 to 4.4
Worker:									
1	90	0	2	16	46	73	93	98	100
2	90	1	8	36	73	96	100	-	-
3	90	9	28	62	83	96	98	100	-
Shelf height:									
Cervical	90	0	6	32	60	82	92	98	100
Waist	90	2	12	38	69	88	100	-	-
Knee	90	8	20	43	73	94	99	100	-
Item:									
Sheets	90	1	7	34	54	80	94	98	100
Terry towels	90	6	13	24	62	87	97	100	-
Pillowcases	90	3	18	54	86	98	100	-	-
Total	270	3	13	38	67	88	97	99	100

Table 6.--Adequacy of the median and of the mean plus one standard deviation of between-shelf spacing for placing 3 kinds of textiles in storage, as judged by 18 workers

Item and clearance	Inches of clearance	Number of items placed	Adequacy of space		
			Too little	Enough	Too much
Sheets:					
Median	2.5	One	0	16	2
		All	1	15	2
Mean plus 1 standard deviation 1/.	2.7	All	0	1	0
Terry towels:					
Median	2.2	One	3	14	1
		All	1	16	1
Mean plus 1 standard deviation 1/.	2.7	One	0	3	0
		All	0	1	0
Pillowcases:					
Median	2.0	One	3	15	0
		All	2	16	0
Mean plus 1 standard deviation 1/.	2.7	One	0	3	0
		All	0	2	0

1/ Only the workers who wanted more than the median amount of space were asked about the adequacy of the mean plus one standard deviation.

Unit-space Dimensions

The results of the computations of storage needs for units of household textiles are given in table 7.

FARMHOUSE STORAGE FACILITIES FOR HOUSEHOLD TEXTILES

The objective of another phase of the study reported here was the determination of measurements for storage facilities that would accommodate the household linen supplies of farm families. The inventories of linens and bedding obtained in the 1948 farm housing surveys and the unit-space dimensions presented in table 7 were used as the basis for planning.

Use of Inventory Data

Homemakers interviewed in the four regional surveys of farm family needs and preferences for housing furnished information as to the quanti-

Table 7.--Unit-space dimensions; size of space needed to store household textiles folded in various ways

Article and description	Folding method		Articles per unit	Unit-space dimensions				
						Height		
						For storage on--		Allowance per additional unit
	Lengthwise	Crosswise		Length	Width	Fixed shelves	Movable surfaces	
			Number	Inches	Inches	Inches	Inches	Inches
Aprons, kitchen.	Thirds or fourths 1/	Halves or thirds 1/	2	11-14	10	4	3	2
Bedspreads:								
Cotton damask, double-bed size.	Sixths	Fourths	1	16	29	4	3	2
	Fourths	Sixths	1	23	20	4	3	2
	Sixths	Eighths	1	16	15	6	4	3
	Eighths	Sixths	1	12	20	6	4	3
	Fourths	Fourths	1	22	28	4	2	2
Chenille, double-bed size.	Sixths	Sixths	1	16	18	8	7	6
	Fourths	Fourths	1	24	26	6	4	3
	Fourths	Sixths	1	24	18	6	5	4
Blankets, rayon and wool blend, 72" x 90".	Thirds	Fourths	1	25	24	6	5	4
	Halves	Fourths	1	36	23	6	4	3
	Halves	Sixths	1	36	16	6	5	4
	Fourths	Fourths	1	19	23	8	6	6
	Sixths	Fourths	1	16	20	10	8	7
Blanket-sheets, cotton flannel, 70" x 90".	Sixths	Sixths	1	13	17	6	4	3
	Fourths	Sixths	1	19	17	5	3	2
	Sixths	Fourths	1	13	24	5	3	2
	Fourths	Fourths	1	19	24	4	3	2
Dishcloths, leno weave, 15" x 15".	Halves	Halves	2	8	8	3	2	1
	Halves	Thirds	2	8	6	4	2	1
Napkins, linen damask, 18" x 18".	Halves	Halves	6	10	10	4	2	1
	Thirds	Halves	6	8	10	4	3	2
Pillows, down.	----------	---------	1	26	18	7	6	5
Pillowcases, muslin; torn size before hemming 36" x 42".	Thirds	Halves	2	8	16	4	2	1
	Thirds	Thirds	2	8	12	4	2	1
	Halves	Fourths	2	11	9	4	2	1
	Thirds	Fourths	2	8	9	4	2	2
Placemats, assorted linen, plastic, fiber.	----------	---------	6	19	13	4	2	1
Pot holders, assorted sizes, designs.	----------	---------	6	7	7	4	2	1
Sheets, double-bed, muslin; torn size before hemming 81" x 108".	Sixths	Eighths	2	15	14	5	3	2
	Eighths	Fourths	2	12	26	4	3	2
	Fourths	Twelvths	2	22	10	5	3	2
	Eighths	Eighths	2	12	14	6	4	3
Scarves, dresser, assorted sizes and designs.	Thirds	Thirds	1	7	13	3	1	½
	Halves	Fourths	1	10	10	3	1	½
	Rolled	---------	1	19	4	5	3	----------
Tablecloths:								
More than 2½ yards long.	Fourths	Eighths	1	19	14	4	2	1
	Fourths	Sixths	1	19	19	4	2	1
	Fourths	Fourths	1	19	28	3	2	1
	Halves	Eighths	1	36	14	3	2	1
2 to 2½ yards long.	Halves	Fourths	2	28	18	3	2	1
	Sixths	Fourths	2	10	19	4	2	1
	Fourths	Fourths	2	15	19	3	1	1
Less than 2 yards long.	Fourths	Sixths	2	14	10	4	3	2
	Fourths	Fourths	2	14	15	4	2	1

1/ Aprons were of assorted sizes and styles. So that they might be piled together, all were folded to approximately the same dimensions. The number of times each apron was folded depended on its unfolded size.

Table 7.--Unit-space dimensions--Continued

Article and description	Folding method		Articles per unit	Unit-space dimensions				
						Height		
	Lengthwise	Crosswise		Length	Width	For storage on--		Allowance per additional unit
						Fixed shelves	Movable surfaces	
			Number	Inches	Inches	Inches	Inches	Inches
Table pads, asbestos.	----------	---------	1	21	13	6	4	3
Towels:								
Bath, terry, 24" x 46".	Thirds	Thirds	2	10	16	5	4	3
	Thirds	Fourths	2	10	12	6	4	3
	Halves	Fourths	2	14	13	5	3	2
Dish, hemmed flour sacks about 30" x 36".	Thirds	Fourths	4	12	11	4	3	2
	Halves	Fourths	4	17	11	4	2	1
	Fourths	Sixths	4	9	8	5	4	3
Hand:								
Kitchen, linen, 15" x 35".	----------	Fourths	4	18	10	4	3	2
	Halves	Fourths	4	10	10	5	3	2
	Halves	Thirds	4	10	12	4	3	2
	Thirds	Fourths	4	7	10	5	4	3
Terry, 16" x 26".	Halves	Halves	2	10	14	4	2	1
	Thirds	Halves	2	7	14	4	3	2
Washcloths, terry, 13" x 13".	Halves	---------	2	7	13	3	2	1
	Halves	Halves	2	7	8	4	2	1

ties of household textiles that the family had in storage or in the laundry at the time of the interviews. Articles used everyday were reported separately from those used only for guests, or kept as a reserve supply for family use. Tablecloths and napkins were further classified as to size.

The regional studies differed somewhat in populations sampled and in schedules and definitions used. Consequently, inventory data obtained in the four regions could not be combined to give a national total. So that the regional inventories could be compared, some data were re-sorted with adjustments for differences in methods of classification, and percentages were recalculated on comparable bases.

Variations in the inventories of subgroups of each regional sample are discussed in the separate regional reports of the four surveys. Only one family characteristic--household size--was defined the same in all studies, hence was the only subclassification factor that could be used in the present study for an interregional comparison of population sub-groups. Two household-size groups, 1 to 4 members and 5 members or more, were used for this investigation. Bath towels, sheets, pillowcases, and warm bed coverings were selected as key items that would likely reflect any differences in inventories due to household size. The analysis disclosed that in the three regions for which data were available, the median numbers of each article reported by the two household-size groups were located in either the identical or the immediately adjacent class interval. (See table 8.) Since variations by household size were minor, computations of storage space requirements were made on the basis of the total sample for each region.

Table 8.--Median number of selected household textiles reported by two household-size groups in Northeast, Southern, and Western regions

Region and household-size group	Median number (or median class) 1/ of specified articles			
	Bath towels	Pillow-cases	Sheets	Blankets, comforters, quilts
Northeast:				
2 to 4 members	11-12	9-10	5-6	13
5 or more members	11-12	9-10	7-8	13
South:				
2 to 4 members	5-6	4	5-6	18
5 or more members	5-6	5	5-6	19
West:				
1 to 4 members	11-12	7-8	5-6	7-8
5 or more members	11-12	7-8	7-8	9-10

1/ Median number reported by families having any of the articles.

The frequency distributions of quantities of each textile stored for every day use by the family only, and for guest or family's future use, together with the total number of each article owned are given in appendix table 13 and summarized in table 9. Fewer Southern families stored tablecloths, napkins, and blanket sheets than did families in the other regions; otherwise little difference was apparent in the percentage of families in each region who stored any of an article or stored it for family use only. Regional variations were seen in the number of families who stored specific articles for guest or family use; in general, more North Central families stored these than did the families in the other regions.

In regard to the quantities of textiles stored by those families storing any of the article, differences between regions followed no consistent pattern. For example, the median number of warm bed coverings was greatest for Southern families, who also reported the fewest towels and table linens. The median number of pillowcases for everyday use was greatest in the Western region, but the median number of sheets for everyday use was the same for all regions.

Two lists of household textiles were derived for each region. On a "limited" list were placed only the kinds of articles of a specific size and use that were reported by at least 50 percent of the sampled families. A "liberal" list included articles reported by at least 25 percent of the sample. The articles were grouped according to their place of use--kitchen linens, bathroom linens, table linens, bedroom linens, and bedding. Hand towels for everyday use were allocated to kitchen storage 11/.

Inventory data were reexamined for evidence of articles of alternative use or of alternative size. Where reexamination showed that the required percentage of families reported a class of articles, it was added to the appropriate list, provided that none of the items making up the class were already listed.

The quantity of articles of each kind on the limited and liberal lists was the median number reported by families who had any of the article.

The similarity between regions in the kinds and quantities of textiles for which storage space was needed became more apparent when data were thus compiled. Subsequent exploratory computations of space needs showed that the small differences between regions were further minimized when the separate regional lists were converted to space data. On the basis of these evidences of similarities between regions, it was decided that design data for household textile storage facilities could be developed for the country as a whole. Interregional listings of limited and liberal supplies of household textiles were derived. These lists included the

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11/ The schedule used in the Western region differentiated between kitchen and "other" hand towels. Data from that region showed that 79 percent of families had kitchen hand towels for everyday use and only 28 percent had "other" hand towels for everyday use.

Table 9.--Percent of families in 4 regions who store specified household textiles for everyday and guest use, and median number of articles stored by those storing any

Article and use	Northeast		South		North Central		West	
	Percent reporting any	Number (median class)	Percent reporting any	Number (median class)	Percent reporting any	Number (median class)	Percent reporting any	Number (median class)
Bath towels:								
Everyday or guest use, or both	92	15-16	92	9-10	95	11-12	97	11-12
Everyday use only	86	11-12	83	5-6	92	9-10	96	11-12
Guest use only	47	5-6	59	5-6	64	5-6	30	5-6
Bedspreads:								
Everyday or guest use, or both	49	3	70	3	54	2	71	3
Blankets, comforters, quilts	96	13-14	100	17-20	94	11-12	93	9-10
Blanket sheets	1/	1/	21	4	50	4	59	4
Dish towels:								
Current or future everyday use, or both	95	13-16	90	9-12	96	21-24	98	17-20
Current use only	91	9-12	89	5-8	95	13-16	98	13-16
Future use only	28	5-8	26	5-8	54	9-12	21	9-12
Hand towels:								
Everyday or guest use, or both	83	11-12	81	9-10	86	11-12	90	11-12
Everyday use only	76	9-10	78	7-8	85	9-10	88	11-12
Guest use only	30	7-8	36	3-4	42	5-6	26	7-8
Mattress pads	11	-	2	-	54	2	8	-
Napkins, any size:								
Everyday or guest use, or both	78	17-20	54	9-12	65	13-16	78	17-20
Everyday use only	36	13-16	15	5-8	38	9-12	36	9-12
Guest use only	58	9-12	49	9-12	49	9-12	61	9-12
Pillows	37	3	33	2	51	4	45	2
Pillowcases:								
Everyday or guest use, or both	95	11-12	97	11-12	97	9-10	97	17-20
Everyday use only	89	9-10	95	7-8	96	5-6	95	13-16
Guest use only	51	5-6	66	5-6	67	3-4	44	7-8
Place mats:								
Everyday or guest use, or both	28	2/	13	5-6	22	2/	32	2/
Everyday use only	18	7-8	7	-	13	5-6	23	5-6
Guest use only	16	5-6	9	5-6	13	5-6	12	5-6
Runners, scarves:								
Everyday or guest use, or both	88	7-8	1/	1/	2/	2/	1/	1/
Everyday use only	76	5-6	1/	1/	82	5-6	1/	1/
Guest use only	31	5-6	1/	1/	30	3-4	1/	1/
Sheets:								
Everyday or guest use, or both	94	7-8	97	7-8	97	9-10	93	7-8
Everyday use only	90	5-6	94	5-6	95	5-6	90	5-6
Guest use only	43	3-4	62	3-4	64	3-4	38	3-4
Tablecloths, less than 2 yds. long:								
Everyday use only	59	4	32	3	74	4	77	4
Guest use only	39	3	32	2	47	3	45	3
Tablecloths, over 2 yds. long:								
Everyday use only	48	3	32	2	58	2	23	2
Guest use only	64	3	72	2	62	2	65	2
Tablecloths, any size:								
Everyday use only	71	6	52	3	88	5	80	5
Guest use only	68	4	80	3	67	5	73	4

1/ Information was not obtained from families.

2/ Tabulation not made.

kinds and generally the quantities of articles that appeared on at least two of the four regional lists. They were supplemented by some items that had not been included on any of the regional schedules--pot holders, washcloths, dishcloths. Quantities of these items were assumed. Aprons were also included on the lists, since over half of Western families kept a supply in the kitchen. More than 90 percent of adult women in the other three regions stored aprons, but location of apron storage was not ascertained.

The kind and quantity of articles on the regional and interregional lists are given in table 10.

Determination of Space Requirements

To be functional, storage of household textiles should be at or near the place where they are used. However, restrictions imposed by such considerations as layout of the house, cost, and family preferences often dictate storing two or more kinds of textiles together. Preliminary computations of space requirements showed that when two classes of textiles (such as kitchen and table linens) were stored in a single storage unit, the dimensions of the unit were not the same as the sum of the dimensions of the individual units. For that reason, storage space dimensions were determined for bedcovers, bed, bath, kitchen, and table linens stored alone and in all possible combinations with other groups. Because dimensions of piles of textiles depend on the pattern of folding, several alternative relationships of depth, width, between-shelf spacings, and number of surfaces were computed for each group of textiles that would be stored together.

Criteria for Storage

When planning storage arrangements, the functional aspects of storage were given first consideration--ease of handling and seeing the items stored, elimination of waste space, and convenience to place of use. At the same time, attention was given to cost and construction limitations, and compromises were made when provisions for optimal storage were in opposition to economy of construction. The criteria which regulated the dimensioning of all storage facilities were as follows:

1. Elimination of waste space.--The entire supply of an article of a given use and size was placed in one pile. Piles were divided only if the height in relation to the width and length became too great to afford a stable pile. No individual trays for single articles were planned.

The depth (front-to-back) dimensions of a storage surface was established by the largest article that was to be stored there. Smaller folded articles were not placed on the same surface unless their front-to-back dimension was at least two-thirds that of the largest article, or was less than half as great so that two-row storage was possible.

Table 10.--Limited and liberal lists of household textiles by region, and interregional lists used for dimensioning storage areas

Kinds of articles	Limited list (median number of articles reported by 50 percent or more families)					Liberal list (median number of articles reported by 25 percent or more families)				
	Northeast	South	North Central	West	Interregional	Northeast	South	North Central	West	Interregional
Table linens:										
Everyday use:										
Tablecloths, less than 2 yds. long	4	0	4	4	4	4	3	4	4	4
Tablecloths, 2 yds. or longer	0	0	2	0	0	3	2	2	0	2
Napkins, 16" square or smaller	0	0	0	0	0	16	0	12	12	12
Place mats	0	0	0	0	0	8	0	0	6	6
Table pad	0	0	0	0	0	1	1	1	1	1
Guest use:										
Tablecloths, less than 2 yds. long	0	0	0	0	0	3	3	3	3	3
Tablecloths, 2 yds. or longer	3	2	2	2	2	3	2	2	2	2
Napkins, 16" square or smaller	12	12	12	12	12	0	0	0	12	0
Napkins, over 16" square	0	0	0	0	0	12	12	12	12	12
Kitchen linens:										
Current everyday use:										
Dish towels	12	8	14	14	14	12	8	14	14	14
Hand towels	1/ 10	1/ 8	1/ 10	8	10	1/ 10	1/ 8	1/ 10	8	10
Dishcloths 2/	12	12	12	12	12	12	12	12	12	12
Pot holders 2/	8	8	8	8	8	8	8	8	8	8
Aprons	2/	2/	2/	6	6	2/	2/	2/	6	6
Future everyday use:										
Dish towels	0	0	12	0	0	8	6	12	0	8
Bed linens:										
Everyday use:										
Sheets	6	6	6	6	6	6	6	6	6	6
Pillowcases, pairs	5	4	3	4	4	5	4	3	4	4
Runners, dresser scarves	6	2/	6	2/	6	6	2/	6	2/	6
Guest use:										
Sheets	0	4	4	0	0	4	4	4	4	4
Pillowcases, pairs	3	3	2	0	3	3	3	2	4	3
Dresser scarves	0	2/	0	2/	0	6	2/	4	2/	6
Bathroom linens:										
Everyday use:										
Bath towels	12	6	10	12	12	12	6	10	12	12
Washcloths 2/	12	12	12	12	12	12	12	12	12	12
Guest use:										
Bath towels	0	6	6	0	0	6	6	6	6	6
Hand towels	0	0	0	0	0	8	4	6	8	8
Washcloths 2/	0	6	6	0	0	6	6	6	6	6
Bed covers:										
Blankets	7	5	6	5	3/ 4	7	5	6	5	3/ 4
Comforters	4	3	5	3	--------	4	3	5	3	--------
Quilts	4	12	4	3	--------	4	12	4	3	--------
Bedspreads	3	3	4	3	3	3	3	4	3	3
Pillows	0	0	0	0	0	3	2	4	2	2
Blanket sheets	2/	0	4	4	4	2/	0	4	4	4

1/ Schedule did not differentiate between kitchen and other hand towels. Median quantity of those reported for everyday use were placed with kitchen linens; those reported for guest use, with bathroom linens.

2/ Information not asked of homemakers.

3/ Accessible storage space was planned for only 4 warm bed coverings (blankets, comforters, quilts). The amount of less accessible bulk storage needed to store the remainder of blankets, comforters, and quilts was determined for individual regions.

Making full use of space between surfaces took precedence over storing together items that are used together. For instance, sheets and pillowcases seldom were arranged on the same surface because of the difference in height of piles. Since piles of sheets and bath towels were about the same height, they were often paired on a single surface.

2. Ease of handling and seeing.--Accessible storage was planned for articles for guest use as well as those for everyday use. Information obtained in the housing surveys indicated that guests are entertained so frequently in farm homes that articles used only when guest are present should be easy to reach.

Only like articles of a given use and size were piled together. Separate piles were made of small and of large terry towels, tablecloths, and the like.

Single-row storage was used on fixed shelves, except occasionally for small items stored in such quantity that multiple piles were necessary. In such instances, one pile was placed directly behind the other, provided that the depth of the storage surface did not have to be increased because of the two-row arrangement.

Two-row or three-row storage was used on surfaces that were designated as movable, since all piles would be accessible when the storage surface was pulled out.

3. Considerations of cost and construction.--Accessible storage space was provided for only four of the total number of warm bed coverings (blankets, comforters, and quilts). For a family of average size, four coverings would be enough to supply each bed with one or two extra coverings in case of sudden weather change, or for making up one or two guest beds. The amount of "dead" storage to accommodate the supply of blankets, comforters, and quilts in excess of four was calculated for each region and reported separately.

To hold width of storage facility to a minimum, folded articles whose longer dimension was less than twice that of the shorter dimension, and was less than 2 feet, were placed with the shorter side parallel to the front edge of the storage surface.

More than half of the width of every surface in a single storage facility was occupied by stacks of articles.

No shelving was less than 16 inches or more than 50 inches wide. Built-in storage less than 16 inches wide is expensive in relation to the amount of storage provided. The upper limit of approximately 4 feet was arbitrarily selected as the maximum practicable for a single tier of shelves.

Procedure

Actual depth of surfaces.--Templates were prepared to represent folded household textiles of different sizes. Those representing the smallest

folded size of each article in a group to be stored together were alined on cross-section paper. The maximum front-to-back measurement was noted. The next larger template for one textile was substituted, and the depth was recorded. This process was repeated until all templates for all articles had been used in the arrangement. A frequency distribution of depths of surfaces was prepared.

Modular depths of surfaces.--Examination of the frequency distributions of depths showed that surface depths could be standardized on a 4-inch module. Twelve inches was selected as the minimum depth, 28 inches the maximum. Surfaces 8 inches deep were useful for small items such as napkins and washcloths, but because their use was limited, surfaces of this depth were not utilized in subsequent computations of space requirements.

Overall width of surfaces.--Two widths, minimum and maximum, were computed in relation to each of the several modular shelf depths found satisfactory for a given group of articles. Minimum width was that required when all articles were folded to their most compact size. The largest folds of the same articles that would fit on a surface of identical depth established maximum width. The two measurements became the lower and upper limits of the "acceptable range" in width of a storage surface of stated depth.

The dimensions of folded textiles used to calculate widths and vertical spacings of surfaces of specified depths are given in appendix table 14.

Width and number of surfaces of a storage facility.--The overall width requirement for a given group or combination of groups of textiles was, in most cases, greater than could be accommodated on a single shelf. Each of the overall widths was subdivided tentatively into shorter sections whose widths fell within the 16- to 50-inch limitation (see p. 24). For example, an overall width of 63 inches was divided into 2 surfaces 32 inches wide, into 3 surfaces 21 inches wide, and into 4 surfaces 16 inches wide. Dimensioned drawings of shelves of these widths and numbers were prepared to show arrangement of the articles on the shelves and heights of piles. The tentative widths were adjusted as needed so that each surface would accommodate the full width of each pile stored there. Arrangements that were wasteful of space were discarded. The end-of-shelf clearance, $1\frac{1}{2}$ inches (see p. 14), was added to the adjusted width.

Vertical spacings of storage surfaces.--Generally, the unit-space measurement for height of the tallest pile of articles stored on each fixed shelf determined the shelf spacing. Clearances that measured less than 7 inches were adjusted to that figure, since a limited number of laboratory observations of a worker cleaning and refinishing shelves indicated that a minimum of 7 inches was needed to perform these tasks with a moderate degree of comfort.

The unit-space measurements for height of articles stored on movable surfaces were used to compute the spacings of sliding shelves, trays, and

drawers. The height of the tallest pile stored on each surface determined its vertical depth. Since movable surfaces can be drawn away from the confining shelves above, the 7-inch minimum allowance between surfaces was not applicable.

Results and Conclusions

Space requirements for limited supplies of household textiles are presented in table 11, and for liberal supplies in table 12. Space to store limited supplies represents the minimum that should be allowed for in farmhouse plans. Storage facilities that provide room for liberal supplies will meet the needs of a large portion of farm families.

Depths of surfaces are in multiples of a 4-inch module. The modular depths found satisfactory for the five classes of articles are as follows:

Bath linens: 12 and 16 inches
Bed linens: 12 and 16 inches
Bedcovers: 16, 20, 24 and 28 inches
Kitchen linens: 12, 16, and 20 inches
Table linens: 16 and 20 inches

Surfaces less than 12 inches deep have limited functional use and are not included in the tables.

The width dimension is reported as a range. Any specific dimension for width that falls within the range can be adopted when a storage facility is planned. Because the upper limit of the range represents comparatively extravagant use of wall space, it is advised only for the unusual situation. Widths that fall between the middle and lower limits of the range are recommended.

Between-shelf spacings, which include a clearance needed to place or remove the textiles from the shelf, are indicated for fixed and movable surfaces. More handling room is needed above fixed shelves than above sliding shelves, drawers, and trays, since the latter can be drawn away from the confining shelves above. As a result, most storage facilities equipped with movable surfaces required 15 to 30 percent less vertical space than do those with fixed shelves, all other dimensions remaining the same.

Table 11.--Dimensions of storage facilities for limited supplies of household textiles: Depth, acceptable range in width, and amount of clear space needed above each of specified number of surfaces, by types of textiles stored together

Item	Depth of surface	Width of surface (acceptable range)	Surfaces required	Spacings 1/ between fixed shelves when width is near--		Vertical depth 1/ of drawers, trays, and sliding shelves when width is near--	
				Lower limit of range	Upper limit of range	Lower limit of range	Upper limit of range
	Inches	Inches	Number	Inches	Inches	Inches	Inches
Bath linens, stored alone	12	18 to 22	2	12, 12	12, 7	11, 11	11, 5
	16	28 to 34	1	10	10	9	8
		18 to 22	2	10, 10	10, 10	9, 9	8, 8
Bed linens, stored alone	12	24 to 30	2	12, 7	8, 7	10, 5	6, 5
	16	30 to 38	1	12	10	10	8
		18 to 22	2	12, 8	10, 7	10, 7	8, 5
Bedcovers, stored alone 2/	16	22 to 38	5	16, 16, 14, 10, 8	12, 10, 10, 8, 7	15, 15, 13, 8, 7	10, 9, 9, 7, 5
	20	26 to 38	4	14, 14, 14, 8	10, 10, 10, 10	13, 12, 12, 7	9, 9, 9, 8
	24	22 to 38	5	14, 14, 12, 8, 7	8, 8, 8, 7, 7	12, 12, 10, 7, 5	7, 7, 7, 4, 4
	28	3/ 26	5	12, 10, 10, 7, 7	10, 10, 8, 7, 7	10, 9, 9, 5, 4	9, 9, 7, 4, 4
Kitchen linens, stored alone	12	3/ 26	2	10, 8	8, 7	8, 6	7, 5
		18 to 20	3	10, 8, 8	8, 8, 7	8, 6, 6	7, 6, 5
	16	4/ 24 to 26	2	8, 8	8, 7	6, 6	7, 5
	20	22 to 26	2	8, 7	8, 7	6, 5	6, 5
		16 to 20	3	8, 8, 7	8, 7, 7	6, 6, 5	6, 5, 5
Table linens, stored alone	16	22 to 40	2	7, 7	7, 7	4, 4	4, 3
	20	20 to 30	2	7, 7	7, 7	4, 4	3, 3
Bath and bed linens, stored together	12	38 to 48	2	12, 12	12, 7	11, 10	11, 5
		22 to 28	4	12, 12, 8, 7	12, 8, 7, 7	11, 10, 6, 5	11, 6, 5, 4
	16	30 to 36	2	12, 10	10, 10	10, 9	8, 8
		20 to 28	3	12, 10, 10	10, 10, 8	10, 9, 9	8, 8, 6
Bath and kitchen linens, stored together	12	3/ 30	3	12, 8, 7	12, 8, 8	11, 6, 5	11, 6, 5
		4/ 24 to 22	4	12, 10, 8, 7	12, 8, 8, 7	11, 8, 6, 5	11, 7, 6, 5
		18 to 20	5	12, 12, 10, 8, 7	12, 12, 8, 8, 7	11, 11, 8, 6, 5	11, 11, 7, 6, 5
	16	36 to 42	2	10, 8	10, 8	9, 6	8, 7
		26 to 28	3	10, 8, 7	10, 8, 8	9, 6, 5	8, 7, 6
Bedding (bedcovers and bed linens stored together)	16	34 to 48	4	16, 16, 14, 8	12, 10, 10, 8	15, 15, 13, 7	10, 9, 9, 7
	20	26 to 38	5	14, 14, 14, 12, 8	10, 10, 10, 10, 7	13, 12, 12, 10, 7	9, 9, 9, 8, 5
Bath linens and bedding (bedcovers and bed linens), stored together	16	28 to 38	6	16, 16, 14, 12, 10, 8	12, 10, 10, 10, 8, 8	15, 15, 13, 10, 9, 7	10, 9, 9, 8, 7, 6
	20	32 to 42	5	14, 14, 14, 10, 8	10, 10, 10, 10, 10	13, 12, 12, 9, 7	9, 9, 9, 8, 8
Bed and table linens stored together	16	28 to 40	3	12, 8, 7	10, 7, 7	10, 7, 4	8, 4, 3
	20	32 to 48	2	10, 7	10, 7	8, 4	8, 5
		24 to 34	3	10, 8, 7	10, 7, 7	8, 7, 4	8, 5, 3

See footnotes at end of table.

Table 11.--Dimensions of storage facilities for limited supplies of household textiles--Continued

Item	Depth of surface	Width of surface (acceptable range)	Surfaces required	Spacings 1/ between fixed shelves when width is near--		Vertical depth 1/ of drawers, trays, and sliding shelves when width is near--	
				Lower limit of range	Upper limit of range	Lower limit of range	Upper limit of range
	Inches	Inches	Number	Inches	Inches	Inches	Inches
Bedding (bedcovers and bed linens) and table linens, stored together.	16	30 to 46	6	16, 16, 14, 10, 8, 7	12, 10, 10, 10, 7, 7	15, 15, 13, 8, 7, 4	10, 9, 9, 8, 4, 3
	20	32 to 46	5	14, 14, 14, 10, 7	10, 10, 10, 10, 7	13, 12, 12, 8, 4	9, 9, 9, 8, 3
		28 to 38	6	14, 14, 14, 8, 8, 8	10, 10, 10, 10, 10, 7	13, 12, 12, 7, 7, 7	9, 9, 9, 8 8, 4
Kitchen and table linens, stored together.	16	30 to 44	3	8, 8, 7	8, 7, 7	6, 6, 4	7, 4, 3
	20	26 to 36	3	8, 8, 7	8, 7, 7	6, 6, 5	6, 5, 3
Bath linens, bedding (bed linens and bedcovers), and kitchen linens stored together.	16	30 to 40	7	16, 16, 14, 12, 10, 8, 7	12, 10, 10, 10, 8, 8, 7	15, 15, 13, 10, 9, 7, 5	10, 9, 9, 8, 7, 6, 5
	20	28 to 38	7	14, 14, 14, 10, 8, 8, 8	10, 10, 10, 10, 10, 8, 7	13, 12, 12, 9, 7, 7, 6	9, 9, 9, 8, 8, 6, 5
Bath, bed, kitchen and table linens, stored together.	16	30 to 42	5	12, 10, 8, 8, 7	10, 8, 8, 7, 7	10, 9, 7, 6, 4	8, 7, 6, 4, 3
	20	34 to 46	4	10, 10, 8, 7	10, 8, 7, 7	9, 8, 6, 5	8, 6, 5, 3
		24 to 32	6	10, 10, 8, 8, 7, 7	10, 10, 8, 7, 7, 7	9, 8, 6, 6, 4, 3	8, 8, 6, 5, 5, 3
All linens and bedcovers, stored together.	16	30 to 44	8	16, 16, 14, 10, 10, 8, 7, 7	12, 10, 10, 10, 10, 8, 7, 7	15, 15, 13, 9, 8, 7, 5, 4	10, 9, 9, 8, 8, 7, 4, 3
	20	40 to 50	6	14, 14, 10, 10, 8, 7	10, 10, 10, 10, 7, 7	13, 12, 9, 8, 6, 4	9, 9, 9, 8, 5, 3
		28 to 38	9	14, 14, 14, 10, 10, 8, 8, 7, 7	10, 10, 10, 10, 10, 8, 7, 7, 7	13, 12, 12, 9, 8, 7, 6, 5, 5	9, 9, 9, 8, 8, 6, 5, 5, 3

1/ Each of the numbers in a series relates to one of the surfaces required; for example, if 2 surfaces are required there are 2 numbers in the series to show inches of clearance needed above each surface.

2/ Accessible storage was planned for only four of the total supply of blankets, comforters, and quilts. Less accessible storage space is needed for an additional 8 to 16 warm bedcoverings. Dimensions of such space needed in houses planned for various regions are: Northeast and North Central regions, 24" x 24" x 44"; South, 24" x 24" x 64"; West, 24" x 24" x 33".

3/ Lower and upper limits of range are identical.

4/ Because of different folding patterns that resulted in variation in number of piles, less width is needed for the maximum than for the minimum allowance.

Table 12.--Dimensions of storage facilities for liberal supplies of household textiles: Depth, acceptable range in width, and amount of clear space needed above each of specified number of surfaces, by types of textiles stored together

Item	Depth of surface	Width of surface (acceptable range)	Surfaces required	Spacings 1/ between fixed shelves when width is near--		Vertical depth 1/ of drawers, trays, and sliding shelves when width is near--	
				Lower limit of range	Upper limit of range	Lower limit of range	Upper limit of range
	Inches	Inches	Number	Inches	Inches	Inches	Inches
Bath linens, stored alone.	12	2/ 26	3	7, 12, 12	7, 12, 12	5, 11, 11	5, 11, 11
		2/ 36	2	12, 12	12, 12	11, 11	11, 11
	16	18 to 24	3	10, 10, 10	10, 10, 10	9, 9, 9	8, 8, 8
		28 to 34	2	10, 10	10, 10	9, 9	8, 8
Bed linens, stored alone.	12	24 to 36	3	12, 8, 7	8, 7, 7	10, 7, 4	6, 5, 4
	16	26 to 32	2	12, 8	12, 7	10, 7	10, 5
Bedcovers, stored alone 3/	20	30 to 44	4	16, 16, 12, 8	12, 10, 10, 10	15, 15, 10, 7	10, 9, 9, 8
	24	28 to 38	6	14, 14, 12, 8, 7, 7	12, 8, 8, 8, 7, 7	12, 12, 10, 7, 5, 5	10, 7, 7, 7, 4, 4
	28	4/28 to 26	6	12, 10, 10, 7, 7, 7	12, 10, 10, 8, 7, 7	10, 9, 9, 5, 5, 4	10, 9, 9, 7, 4, 4
		2/ 50	3	12, 10, 7	12, 10, 7	10, 9, 5	10, 9, 4
Kitchen linens, stored alone.	12	4/32 to 30	2	10, 8	8, 8	8, 6	7, 6
		4/24 to 22	3	10, 8, 8	8, 8, 7	8, 6, 6	7, 6, 4
	16	24 to 30	2	8, 8	8, 8	7, 6	7, 6
		18 to 22	3	8, 8, 7	8, 8, 7	7, 6, 5	7, 6, 4
	20	22 to 30	2	8, 8	8, 7	6, 6	6, 5
		16 to 22	3	8, 8, 8	8, 7, 7	6, 6, 6	6, 5, 3
Table linens, stored alone.	16	22 to 38	6	7, 7, 7, 7, 7, 7	7, 7, 7, 7, 7, 7	4, 4, 4, 3, 2, 2	4, 4, 3, 2, 2, 2
	20	26 to 40	4	7, 7, 7, 7	7, 7, 7, 7	4, 4, 4, 4	4, 3, 3, 3
Bath and bed linens, stored together.	12	38 to 42	4	12, 12, 8, 8	12, 12, 8, 8	11, 10, 7, 6	11, 7, 5, 5
		30 to 34	5	12, 12, 12, 8, 7	12, 12, 8, 8, 7	11, 11, 10, 6, 5	11, 7, 6, 5, 5
	16	36 to 44	3	12, 10, 8	10, 10, 8	10, 9, 7	8, 8, 7
		28 to 34	4	12, 10, 10, 8	10, 10, 8, 7	10, 9, 9, 7	8, 8, 7, 5
Bath and kitchen linens, stored together.	12	2/ 34	4	12, 10, 8, 7	12, 8, 8, 8	11, 8, 7, 5	11, 7, 7, 6
		26 to 28	5	12, 12, 12, 8, 8	12, 12, 8, 8, 7	11, 11, 11, 7, 6	11, 11, 7, 6, 5
	16	36 to 42	3	10, 10, 7	10, 8, 8	9, 9, 5	8, 7, 7
		28 to 34	4	10, 10, 8, 8	10, 10, 8, 7	9, 9, 7, 6	8, 8, 7, 5
		22 to 28	5	10, 10, 8, 8, 7	10, 10, 8, 8, 7	9, 9, 7, 6, 5	8, 8, 7, 6, 5
Bedding (bedcovers and bed linens stored together).	16	32 to 46	6	16, 16, 14, 12, 12, 8	12, 12, 10, 10, 10, 7	15, 15, 13, 10, 10, 7	10, 10, 9, 9, 8, 5
	20	36 to 48	5	14, 14, 14, 12, 10	12, 10, 10, 10, 10	13, 12, 12, 10, 8	10, 9, 9, 8, 8
		28 to 38	6	14, 14, 14, 12, 10, 8	12, 10, 10, 10, 10, 10	13, 12, 12, 10, 8, 7	10, 9, 9, 9, 8, 8

See footnotes at end of table.

Table 12.--Dimensions of storage facilities for liberal supplies of household textiles: Depth, acceptable range in width, and amount of clear space needed above each of specified number of surfaces, by types of textiles stored together---Continued

Item	Depth of surface	Width of surface (acceptable range)	Surfaces required	Spacings 1/ between fixed shelves when width is near--		Vertical depth 1/ of drawers, trays, and sliding shelves when width is near--	
				Lower limit of range	Upper limit of range	Lower limit of range	Upper limit of range
	Inches	Inches	Number	Inches	Inches	Inches	Inches
Bath linens and bedding (bed linens and bedcovers stored together)	16	30 to 40	8	16, 16, 14, 12, 12, 10, 10, 8	12, 12, 10, 10, 10, 10, 8, 7	15, 15, 13, 10, 10, 9, 9, 7	10, 10, 9, 9, 8, 8, 7, 5
	20	36 to 50	6	14, 14, 14, 12, 10, 10	12, 10, 10, 10, 10, 10	13, 12, 12, 10, 9, 8	10, 9, 9, 9, 8, 8
		28 to 38	8	14, 14, 14, 12, 10, 10, 10, 8	12, 10, 10, 10, 10, 10, 10, 7	13, 12, 12, 10, 9, 9, 8, 7	10, 9, 9, 9, 8, 8, 8, 5
Bed and table linens, stored together.	16	30 to 46	6	12, 8, 7, 7, 7, 7	10, 7, 7, 7, 7, 7	10, 7, 4, 4, 4, 3	8, 4, 4, 3, 3, 3
	20	24 to 38	6	10, 8, 7, 7, 7, 7	10, 7, 7, 7, 7, 7	8, 7, 5, 4, 4, 4	8, 5, 4, 4, 3, 2
Bedding (bedcovers and bed linens) and table linens, stored together	20	28 to 38	10	14, 14, 14, 12, 10, 8, 7, 7, 7, 7	12, 10, 10, 10, 10, 10, 7, 7, 7, 7	13, 12, 12, 10, 8, 7, 5, 4, 4, 4	10, 9, 9, 9, 8, 8, 5, 4, 4, 3
Kitchen and table linens, stored together.	16	24 to 38	8	8, 8, 7, 7, 7, 7, 7, 7	8, 8, 7, 7, 7, 7, 7, 7	7, 6, 4, 4, 4, 3, 2, 2	7, 6, 4, 4, 3, 2, 2, 2
	20	28 to 42	5	8, 8, 7, 7, 7	8, 7, 7, 7, 7	6, 6, 4, 4, 4	6, 5, 3, 3, 3
Bath linens, bedding (bed linens and bedcovers), and kitchen linens stored together.	16	34 to 48	8	16, 16, 14, 12, 10, 10, 8, 8	12, 12, 10, 10, 10, 10, 8, 8	15, 15, 13, 10, 9, 8, 7, 7	10, 10, 9, 9, 8, 8, 7, 6
		28 to 38	10	16, 16, 14, 12, 12, 10, 10, 8, 8, 8	12, 12, 10, 10, 10, 10, 8, 8, 8, 7	15, 15, 13, 10, 10, 9, 9, 7, 7, 6	10, 10, 9, 9, 8, 8, 7, 7, 6, 5
	20	32 to 46	8	14, 14, 14, 12, 10, 10, 8, 8	12, 10, 10, 10, 10, 8, 7, 7	13, 12, 12, 10, 9, 8, 7, 6	10, 9, 9, 9, 8, 7, 5, 5
Bath, bed, kitchen, and table linens, stored together.	16	36 to 48	8	12, 10, 10, 8, 7, 7, 7, 7	10, 10, 8, 8, 7, 7, 7, 7	10, 9, 9, 7, 5, 4, 4, 3	8, 8, 7, 6, 5, 5, 4, 3
		30 to 40	10	12, 10, 10, 8, 8, 7, 7, 7, 7, 7	10, 10, 10, 8, 7, 7, 7, 7, 7, 7	10, 9, 9, 7, 6, 5, 5, 4, 3, 2	9, 8, 8, 7, 5, 4, 4, 3, 3, 3
		26 to 40	9	10, 10, 10, 10, 8, 8, 7, 7, 7, 7	10, 10, 10, 7, 7, 7, 7, 7, 7	9, 9, 9, 8, 7, 6, 5, 4, 4	8, 8, 8, 5, 5, 4, 3, 3, 2
All linens and bedcovers stored together.	16	28 to 38	15	16, 16, 14, 12, 12, 10, 10, 8, 8, 8, 7, 7, 7, 7, 7, 7	12, 12, 10, 10, 10, 10, 8, 8, 8, 7, 7, 7, 7, 7, 7, 7	15, 15, 13, 10, 10, 9, 7, 7, 7, 7, 5, 4, 4, 3, 3, 2	10, 10, 9, 9, 8, 8, 7, 7, 6, 5, 4, 4, 3, 3, 3
		38 to 48	12	16, 16, 14, 12, 12, 10, 10, 8, 8, 7, 7, 7, 7	12, 12, 10, 10, 10, 8, 8, 7, 7, 7, 7	15, 15, 13, 10, 10, 9, 7, 6, 4, 4, 3, 3	10, 10, 9, 9, 8, 7, 6, 4, 4, 3, 3, 3

See footnotes at end of table.

Table 12:--Dimensions of storage facilities for liberal supplies of household textiles: Depth, acceptable range in width, and amount of clear space needed above each of specified number of surfaces, by types of textiles stored together---Continued

Item	Depth of surface	Width of surface (acceptable range)	Surfaces required	Spacings 1/ between fixed shelves when width is near--		Vertical depth 1/ of drawers, trays, and sliding shelves when width is near--	
				Lower limit of range	Upper limit of range	Lower limit of range	Upper limit of range
	Inches	Inches	Number	Inches	Inches	Inches	Inches
All linens and bedcovers stored together--continued	20	36 to 50	10	14, 14, 14, 12, 10, 10, 8, 8, 7, 7	12, 10, 10, 10, 10, 8, 8, 7, 7, 7	13, 12, 12, 10, 9, 8, 6, 6, 4, 4	10, 9, 9, 8, 8, 6, 6, 4, 3, 2
		28 to 40	13	14, 14, 14, 12, 10, 10, 10, 8, 8, 7, 7, 7, 7	12, 10, 10, 10, 10, 10, 8, 7, 7, 7, 7, 7, 7	13, 12, 12, 10, 9, 9, 8, 7, 6, 5, 5, 4, 4	10, 9, 9, 9, 8, 8, 8, 6, 5, 4, 3, 3, 3

1/ Each of the numbers in a series relates to one of the surfaces required; for example, if 2 surfaces are required there are 2 numbers in the series to show inches of clearance needed above each surface.

2/ Lower and upper limits of range are identical.

3/ Accessible storage was planned for only four of the total supply of blankets, comforters, and quilts. Less accessible storage space is needed for an additional 8 to 16 warm bedcoverings. Dimensions of such space needed in houses planned for various regions are: Northeast and North Central regions, 24" x 24" x 44"; South, 24" x 24" x 64"; West, 24" x 24" x 33".

4/ Because of different folding patterns that resulted in variation in number of piles, less width is needed for the maximum than for the minimum allowance.

APPENDIX

Data on Quantities and Dimensions of Textiles Used for Calculating Storage Space Requirements

Table 13.--Quantities of household textiles stored by farm families for everyday use only, guest use only, and for any use, by region of residence

Article and quantity stored	Percentage of households storing textiles for specified uses, interviewed in--											
	Northeast			South			North Central			West		
	Everyday use only	Guest use only	Any use	Everyday use only	Guest use only	Any use	Everyday use only	Guest use only	Any use	Everyday use only	Guest use only	Any use
Bath towels:												
None	14	53	8	17	41	8	8	36	5	4	70	3
1-2	1	4	1	10	10	4	2	7	1	2	2	1
3-4	4	10	3	18	16	12	9	15	5	7	9	4
5-6	12	13	9	15	15	13	15	21	9	13	8	9
7-8	8	5	6	12	5	13	10	5	7	11	2	10
9-10	8	4	7	10	5	13	13	6	11	10	2	10
11-12	19	5	15	5	4	9	22	7	15	24	5	18
13-14	2		3	4		7	4		5	4		5
15-16	4		6	2		4	3		7	6		9
17-18	4	5	6	2	4	3	3	3	8	5	2	7
19-20	4		6	2		4	5		6	3		4
21 and more	19		29	3		10	6		21	11		20
No information	1	1	1	1/	1/	1/	0	1/	1/	1/	1/	1/
Bedspreads:												
None	2/	2/	5/51	43	57	30	3/21	3/53	3/16	3/33	3/83	3/29
1			7	14	9	12	11	21	7	14	8	14
2			15	17	15	19	27	18	18	19	6	20
3			9	12	5	15	18	4	16	14	1	13
4			7	7	8	8	14	2	22	11	1	10
5 and more			11	7	6	16	9	2	21	9	1/	14
No information			0	0	0	0	0	0	0	1/	1/	1/
Blankets, comforters, quilts:												
None	7/	7/	4	7/	7/	1/	7/	7/	6	7/	7/	7
1-2			1/			1/			2			3
3-4			4			1			4			11
5-6			11			2			8			17
7-8			10			5			11			14
9-10			10			6			10			15
11-12			11			8			12			12
13-14			9			10			8			7
15-16			8			11			8			5
17-20			14			18			12			6
21-24			7			13			9			2
25 and more			11			25			10			1
No information			1			1/			6/			1/
Blanket-sheets:												
None	2/	2/	2/	2/	2/	79	2/	2/	5/50	42	94	41
1						1			1	3	1/	4
2						5			9	16	3	15
3						3			8	6	1	6
4						6			13	17	1	17
5						1			1	3	0	2
6 and more						5			18	13	1	15
No information						1/			6/	1/	1/	1/
Dish Towels:												
None	9	72	6/ 5	11	74	10	5	46	4	2	79	2
1-4	3	5	2	22	11	17	2	3	1	1/	1	1/
5-8	14	10	12	27	9	25	13	18	6	9	6	7
9-12	36	7	33	21	6	22	31	16	17	33	7	24
13-16	6	1	7	6	0	8	7	4	8	14	2	13
17-20	9		11	8	0	10	12	1	12	11		12
21-24	12	4	13	3	0	5	17	4	20	16	5	18
25 and more	10		17	2	0	3	13	8	32	15		24
No information	1	1	6/	1/	0	1/	0	0	0	1/	1/	1/

See footnotes at end of table.

Table 13.--Quantities of household textiles stored by farm families for everyday use only, guest use only, and for any use, by region of residence---Continued

Article and quantity stored	Percentage of households storing textiles for specified uses, interviewed in--											
	Northeast			South			North Central			West		
	Everyday use only	Guest use only	Any use	Everyday use only	Guest use only	Any use	Everyday use only	Guest use only	Any use	Everyday use only	Guest use only	Any use
Hand towels:												
None	24	70	6/17	22	64	19	15	58	14	12	74	10
1-2	1	1	1	7	7	3	2	6	2	1	2	1
3-4	5	4	5	14	10	10	7	10	3	8	4	6
5-6	17	8	16	15	11	11	16	13	10	16	6	12
7-8	6	2	5	11	3	12	13	4	11	10	3	9
9-10	9	3	4	13	2	15	10	2	10	8	2	7
11-12	16	6	15	6	1	9	22	4	15	22	5	18
13-16	7	1/	8	6	1	9	5	1	10	9	2	12
17-20	5	2	9	3	1/	6	6	0	10	6	1	9
21-24	5	1	8	1	1/	2	3	1	7	5	1	6
25 and more	4	1	8	2	1/	4	1	1	8	3	1/	9
No information	1	1	6/	1/	1/	1/	1/	1/	1/	1/	1/	1
Mattress pads:												
None	2/	2/	5/89	2/	2/	98	2/	2/	46	2/	2/	92
1			4			1/			10			6
2			4			1			18			1
3 and more			2			1/			26			1
No information			1			1/			1/			1/
Napkins, total number of all sizes:												
None	64	42	22	85	51	46	62	51	35	64	39	22
1-4	2	1	2	3	1	2	1	1	1	1	2	2
5-8	4	10	10	5	18	17	12	11	9	6	12	12
9-12	11	22	21	4	13	13	15	23	21	13	20	19
13-16	2	3	4	1	3	4	1	2	6	2	3	4
17-20	4	4	8	1/	4	4	2	3	6	3	7	9
21-24	5	6	11	1	4	5	3	5	11	4	8	11
25 and over	7	12	21	1	6	9	4	4	11	7	9	21
No information	1	0	1	1/	1/	1/	1/	0	1/	1/	1/	1/
Pillows:												
None	2/	2/	5/63	2/	2/	67	2/	2/	6/49	2/	2/	55
1			4			3			1/			4
2			11			16			13			20
3			4			3			3			4
4			8			7			11			11
5			2			1/			1			1
6 or more			7			4			23			5
No information			1			1/			6/			1/
Pillowcases (individual):												
None	11	49	6/ 5	5	34	3	4	33	3	5	56	3
1-2	2	5	2	6	9	2	6	16	1	1	3	1
3-4	11	11	7	17	21	7	23	22	12	4	8	3
5-6	15	10	9	18	14	11	26	12	13	4	3	2
7-8	14	6	9	13	8	11	16	8	16	10	11	7
9-10	8	4	10	11	4	12	8	3	14	2	1	2
11-12	16	7	13	12	5	12	10	4	15	20	9	12
13-16	8	2	14	8	2	16	3	1	12	15	3	14
17-20	6	2	11	5	2	12	2	1	6	6	1	10
21-24	5	2	8	2	1	5	2	0	5	15	3	14
25 and more	3	1	12	3	1/	9	1/	0	3	18	2	32
No information	1	1	6/	1/	1/	0	6/	6/	6/	1/	1/	1/
Place mats:												
None	82	84	72	93	91	86	87	87	78	77	88	68
1-4	4	4	7/	3	2	3	6	5	7/	7	4	7/
5-6	3	4		2	4	5	3	3		5	2	
7-8	4	2		1/	2	3	2	2		4	3	
9 and more	6	5		1	1	3	2	3		7	3	
No information	1	1		1/	1/	1/	6/	6/		1/	1/	

See footnotes at end of table.

Table 13.--Quantities of household textiles stored by farm families for everyday use only, guest use only, and for any use, by region of residence---Continued

Article and quantity stored	Percentage of households storing textiles for specified uses, interviewed in--											
	Northeast			South			North Central			West		
	Everyday use only	Guest use only	Any use	Everyday use only	Guest use only	Any use	Everyday use only	Guest use only	Any use	Everyday use only	Guest use only	Any use
Runners, scarves:												
None	24	69	12	2/	2/	2/	18	60	7/	2/	2/	2/
1-2	5	4	5				4	5				
3-4	15	7	12				14	15				
5-6	21	7	23				28	8				
7-8	8	3	10				12	4				
9-10	7	2	8				7	3				
11-12	9	3	12				8	3				
13 and more	10	4	18				9	2				
No information	1	1	6/				6/	6/				
Sheets:												
None	10	57	6/ 6	6	38	3	5	36	3	10	62	7
1-2	5	12	4	13	12	5	6	16	2	7	11	6
3-4	17	14	13	26	23	11	25	24	13	17	12	13
5-6	23	8	16	23	14	20	27	14	16	24	7	19
7-8	17	3	16	15	6	19	17	6	17	14	5	14
9-10	7	1	13	7	3	13	9	3	16	7	1	8
11-12	11	1	12	5	2	10	9	1	14	10	2	11
13-16	7	3	11	3	1	9	1	1/	10	5	1/	9
17 and more	2		9	2	1	10	1	0	9	6	1/	13
No information	1	1	6/	1/	1/	1/	6/	6/	6/	1/	1/	1/
Tablecloths, less than 2 yds. long:												
None	41	61	7/	68	68	7/	26	53	7/	23	55	7/
1	3	5		7	7		3	5		4	5	
2	8	8		7	9		15	17		10	10	
3	8	7		6	7		11	7		10	8	
4	14	7		4	4		17	9		15	10	
5	5	1		4	1		6	1		6	3	
6	10	5		2	2		13	5		15	4	
7 and more	10	5		2	2		9	3		17	5	
No information	1	1		1/	1/		6/	6/		1/	1/	
Tablecloths, 2 yds. or longer:												
None	52	36	7/	68	28	7/	42	38	7/	77	35	7/
1	4	12		9	20		14	12		6	16	
2	10	18		10	25		19	24		7	21	
3	10	14		5	12		11	13		5	13	
4	8	10		4	9		7	7		2	9	
5	3	3		1	3		2	2		1	2	
6	5	3		1	2		4	3		1	2	
7 and more	7	3		2	1		1	1		1	2	
No information	1	1		1/	1/		6/	6/		1/	1/	
Tablecloths, all sizes:												
None	29	32	31	48	20	19	12	33	33	20	27	27
1	2	5	------	10	17	------	3	3	------	4	10	------
2	6	14	------	13	21	------	12	13	------	8	12	------
3	7	9	------	9	15	------	12	10	------	10	9	------
4	9	9	------	7	9	------	12	12	------	14	10	------
5	7	6	------	4	6	------	9	7	------	6	8	------
6	10	7	------	3	5	------	14	8	------	14	8	------
7	5	4	------	2	2	------	6	3	------	4	4	------
8 and more	24	13	------	4	5	------	20	11	------	20	12	------
No information	1	1	------	1/	1/		6/	6/		1/	1/	------
Number of families...	2,854			751			324			1,149		

1/ Less than 0.5 percent. 2/ Not asked. 3/ Washable spreads only. Nonwashable spreads were stored by only 8 percent of Western, and by 54 percent of North Central households. 4/ Family use only. Blanket sheets for guest use were stored by 7 percent. 5/ Stored all year plus stored in summer only. 6/ Included with "None". 7/ Tabulation not made.

Table 14.--Dimensions of piles of folded textiles used to calculate widths and heights of storage spaces needed for storing limited and liberal supplies of household textiles 1/ on surfaces of specified depths

Kind of article and number per pile 2/	Dimensions of piles 3/ (exclusive of vertical clearance) for calculation of minimum and maximum allowance on surfaces--					
	12 inches deep		16 inches deep		20 inches deep	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
	Inches	Inches	Inches	Inches	Inches	Inches
Bath linens:						
* 6 bath towels, everyday use	12x10x10	12x10x10	16x10x8	14x13x7	16x10x8	14x13x7
* 6 bath towels, everyday use	do	do	do	do	do	do
6 bath towels, guest use	do	do	do	do	do	do
8 hand towels, guest use	10x14x6	10x14x6	14x7x8	14x10x6	14x7x8	14x10x6
*12 washcloths, everyday use:						
2 piles of 6	8x7x4	8x7x4	4/ 8x7x4	----------	4/ 8x7x4	----------
or						
1 pile of 12	----------	----------	----------	13x7x5	----------	13x7x5
6 washcloths, guest use	8x7x4	8x7x4	8x7x4	13x7x2	8x7x4	13x7x2
Bed linens:						
* 6 sheets, everyday use	12x14x9	12x26x5	14x12x9	15x14x7	5/ 10x22x7	15x14x7
4 sheets, guest use	12x14x6	12x26x4	14x12x6	15x14x5	5/ 10x22x5	15x14x5
* 4 pr. pillowcases, everyday use	12x8x5	11x9x4	5/ 8x9x6	16x8x4	5/ 9x8x5	16x8x4
* 3 pr. pillowcases, guest use	12x8x4	11x9x3	5/ 8x9x4	16x8x3	5/ 9x8x4	16x8x3
* 6 dresser scarves, everyday use	10x10x3	10x10x3	13x7x2	13x7x2	6/ 19x4x4	19x10x1
6 dresser scarves, guest use	do	do	do	do	do	do
Bedding:						
* 2 damask bedspreads			16x15x7	16x29x4	20x12x6	16x15x7
* 1 chenille bedspread			16x18x6	16x18x6	18x16x6	18x16x6
* 4 blanket-sheets	12-inch surfaces not		13x17x12	13x24x9	17x13x12	19x17x8
* 2 blankets	planned for this		16x20x14	16x36x8	19x23x11	16x36x8
* 2 blankets	group.		do	do	do	do
2 pillows			18x26x9	18x26x9	18x26x9	18x26x9
Kitchen linens:						
* 14 dish towels, current use:						
2 piles of 7	9x8x5	----------	4/ 8x9x5	----------	4/ 9x8x5	----------
or						
1 pile of 14	----------	12x11x6	----------	12x11x6	----------	17x11x4
8 dish towels, future use	9x8x6	12x11x3	7/ 9x8x6	12x11x3	7/ 9x8x6	17x11x2
* 12 dishcloths, current use:						
2 piles of 6	4/ 6x8x4	4/ 6x8x4	4/ 8x6x4	----------	4/ 8x6x4	----------
or						
1 pile of 12	----------	----------	----------	13x8x4	----------	13x8x4
* 6 aprons, current use	11x10x5	11x10x5	14x10x5	14x10x5	14x10x5	14x10x5
* 10 hand towels, current use:						
1 pile of 10	10x7x7	12x10x4	12x10x4	12x10x4	----------	18x10x4
or						
2 piles of 5	----------	----------	----------	----------	4/ 10x7x4	----------
* 8 pot holders	7x7x2	7x7x2	7x7x2	7x7x2	7x7x2	7x7x2
Table linens:						
* 2 large tablecloths, guest use			14x19x3	14x36x2	19x14x3	19x28x2
2 medium tablecloths, everyday	12-inch surfaces not		15x19x1	13x28x1	19x10x1	18x28x1
* 4 small tablecloths, everyday	planned for this		14x10x3	14x28x1	5/ 10x14x3	15x14x2
3 small tablecloths, guest	group		14x10x2	14x28x1	5/ 10x14x2	15x14x2
* 12 small napkins (2 piles of 6)			4/ 7x10x3	4/ 7x10x3	4/ 10x5x3	4/ 10x9x2
12 large napkins (2 piles of 6)			4/ 8x10x2	4/ 8x10x2	4/ 10x6x2	4/ 10x10x1
6 placemats, everyday use			13x19x1	13x19x1	19x13x1	19x13x1
1 table pad			13x21x3	13x21x3	13x21x3	13x21x3

1/ As shown by interregional lists (see p. 23).
2/ All items included on liberal list, only starred items on limited list.
3/ Dimensions given in following order: front-to-back, side-to-side, height.
4/ One pile placed in back of the other on the shelf.
5/ Pile of guest-use items placed in back of similar items for everyday use.
6/ Scarves rolled on a cardboard tube, $2\frac{1}{2}$ inches diameter.
7/ Dish towels for future use placed in back of pile of pot holders.